PART 10 OF STUDY MATERIAL

INSPECTION, TESTING AND MAINTENANCE (Excerpts)
The standpipe system must be regularly inspected by the C of F holder. This is to make sure that the system is working properly at all times. This visual inspection should make sure that the system is free from corrosion. The inspection should also make sure that there is no physical damage to the system. Special attention should be paid to any evidence of tampering with the standpipe system. Any part of the system that is damaged or missing should be repaired or replaced immediately.

All valves and connections to the automatic water supply sources should be inspected. The valves should be checked to make sure that they are in the correct position. The valves should also be labeled to show their correct position and purpose. The hose outlets should be checked to make sure that the pressure restricting devices are present. The Fire Department should be notified when any part of the system is shut down for maintenance or repairs. A sign should be posted indicating that the section is shut down.

All Fire Department connections must be tested at least once every 5 years. All major defects in the system should be immediately reported to the local fire house, the owner of the building and the Bureau of Fire Prevention should also be notified. Major defects include: an empty tank, a break or a leak in the system's piping, an inoperative or shut water supply valve or a defective Fire Department connection. The defects should be corrected as soon as possible. A complete or partial shutdown of the standpipe system for repairs or any other reason must also be reported.

Minor defects should be reported to the owner of the building. The defects should be repaired within 30 days. If the defects are not corrected within 30 days, they must be reported to the Bureau of Fire Prevention.

The date of all inspections, maintenance and repairs made on the system must be recorded on the inspection record card. The record should also include the C of F number and the signature of the C of F holder. This record must be posted near the main control valve on the premises. All records must be kept for a period of at least three years. They should be made available to any representative of the Fire Department.

STANDPIPE SYSTEM MAINTENANCE AND INSPECTIONS (FC 901.6)
1. Automatic and non-automatic standpipe systems shall be inspected, tested and maintained as required by NFPA #25 2002 edition by a competent person holding a C of F, employed by the owner, to see that all parts of the system are in good working order, and that the Fire Department connection or connections, if any, are ready for immediate use by the Fire Department. A detailed record shall be kept of each inspection for examination by any representative of the Fire Department.

2. At least once in five years, the Fire Department connection or connections, for a standpipe system shall be subjected to a hydrostatic pressure test. The standpipe system shall also be subjected to a flow and pressure test to demonstrate its suitability for Fire Department use. The test shall be conducted by the owner's representative before a representative of the Fire Department.

3. There shall be one or more employees instructed in the maintenance of standpipe systems.

Inspection and Maintenance of the Gravity Tank

The gravity tank should be regularly inspected and maintained. Maintenance is needed to be sure that the tank functions correctly. For example, the tank may need to be painted regularly to prevent rusting. Before the inside of a gravity tank is repainted the surface should be thoroughly dried. All loose paint, rust, scale, and other surface contamination should be removed and local patching shall be performed where required. A complete finish coat of paint is needed when the paint has weathered thin. A new coat of paint also improves the appearance of the tank after it has been patched.

Painters must be careful that scrapings or other foreign materials do not fall down the outlet into the riser piping. The discharge outlet may be covered for protection during repairs. Only a few sheets of paper or a paper bag tied over the end of the settling basin stub should be used. The paper bag should be removed immediately after the job is finished.

Pump Inspection and Maintenance

In order to ensure the reliable operation of the pump in the case of an emergency regular inspections and maintenance should be conducted by the C of F holder. The pump should be activated each week according to the manufacturer's specifications to ensure that it is working properly. When the pump is in operation, a small water leak is desirable and should not be considered a malfunction.

If an automatic controller operates the fire pump, the pump should be activated by reducing the water pressure in the system. This can be done by opening the test drain or initiating a large water flow from the system. By starting the fire pump this way the C of F holder can determine if the automatic controller is working properly. Care should be taken to make sure that the pump does not overheat while conducting the test.

The centrifugal pump relies on the water supply for cooling and lubrication. The pump should never be operated without the pump being supplied with water.

A visual inspection of all parts of the pump and the controlling equipment should also be conducted. This inspection should include the condition and reliability of the power supply. If any problems are discovered with the equipment immediate action should be taken to correct them.

Fire pumps should be fully tested to make sure that the pump, driver, power supply and all other parts are working properly. Several different water supply sources may be used in a yard system.

Inspection and Maintenance of Yard Systems

The C of F holder should conduct regular inspections of the entire yard system. A record of all inspections should be made. The C of F of holder should sign and date all records. These records should be kept for at least 3 years. They should be made available to any representative of the Fire Department.

The C of F holder should make sure that the hose houses are in good working order. All equipment inside should be inspected. The hose house should be accessible at all times. The hose house should be painted red. Care should be taken to make sure that the area inside the house is kept clean and dry. All valves should be checked to make sure that they are in the correct position.

Any problems with the equipment in the yard system should be noted. Major defects should be reported to the Fire Department and the owner of the building immediately. Minor defects should be reported to the owner. In all cases, the defects in the system should be repaired immediately.

INSPECTION TASKS, SUMMARY
A. Standpipe Systems:

Gauge:
On dry, pre-action and deluge systems shall be inspected **weekly** to ensure that normal air and water pressures is maintained;

Where air pressure supervision is connected to a constantly attended location shall be inspected **monthly**;

On wet pipe sprinkler system shall be inspected **monthly** to ensure good condition & that normal water supply pressure are being maintained.

Alarm Devices:
Alarm devices shall be inspected **quarterly** to verify that they are free of physical damage.

Buildings:
Annually, prior to freezing weather, buildings with wet pipe systems shall be inspected to verify that window, skylights, doors ventilators, other opening and closures, blind spaces, unused attics, stair towers, roof houses and low spaces under buildings do not expose water-filled standpipe piping to freezing and to verify that adequate heat with temperature is 40ºF (4.4ºC).

Hanger/Seismic Braces:
Hangers installed in concealed space such as above suspended ceilings shall not need inspection;

Hangers installed in areas that are inaccessible for safety considerations due to process operations shall be inspected during each scheduled shutdown.

Hangers and braces shall be inspected **annually** from floor level to ensure they are in place, properly aligned and otherwise not damaged. All defects and deficiencies shall be corrected.

Piping:
Shall be inspected **quarterly** from the floor level to ensure there is no mechanical damage, leakage, corrosion, misalignment and that required supports and bracing are in place and are in good condition and not missing. Nothing shall be attached to any sprinkler system component.

Pipe installed within concealed (such as above suspended ceilings spaces) are not required to be inspected. Exposed piping installed in areas that are inaccessible for safety considerations due to process operations shall be inspected during each scheduled shutdown.

Pipe installed in areas that inaccessible shall be inspected during each scheduled shutdown;

Piping, pipe support devices, control valves and supervisory devices are inspected for damage or missing.

Pressure Regulating devices
Hose Connections:
All valves shall be inspected **quarterly** to ensure the hand wheel is not broken or missing, the outlet hose threads are not damaged and are without leaks. The pressure restricting device and the cap, if so equipped shall be in place Hose valves are not required to be operated.

All valves shall be inspected **quarterly** to ensure hand wheel is not missing or broken and that there are no leaks.

Occupant hose shall be physically inspected annually to determine that it is free from debris, the

hose exhibits no evidence of rot, mildew, or damage by vermin, or burns, cuts and abrasions, and any couplings and nozzle has not been vandalized.

Manual, semiautomatic, or dry standpipe – valve does not operate smoothly Hose must be removed from service and replaced with new hose or nozzle. Hose shall be un-racked, unreeled, or unrolled annually.

Hose 1962
Hose shall be inspected and services tested as specified NFPA 1962, within in 90 days prior to being placed in service for the first time and at least **annually** thereafter. Hose carried on fire apparatus shall be loaded in such a way that air can circulate under the hose load to eliminate or reduce the growth of mildew in the hose jacket and rust and corrosion.

Only clean, dry hose shall be placed into service.

Hose shall be removed from the apparatus and reloaded so that the folds occur at different positions with sufficient frequency to prevent damage and the setting of permanent folds in the rubber lining.

Large-diameter hose used to supply a pump from a hydrant shall be protected from chafing with chafing blocks or similar protection where it comes in contact with pavement or curbing.

When connecting a pump to a hydrant, the hose shall be bent slightly to avoid kinks when the water is turned on.

Care shall be taken to prevent the hose from chafing.

Care shall be taken to avoid dragging large-diameter fire hose, but if the hose must be dragged, it shall be dragged when flat.

Remove and inspect the hose , including gaskets, and re-rack or re-reel at intervals in accordance with NFPA 1962.

Hose shall be inspected for mildew, cuts abrasions, coupling damaged , gaskets missing or deteriorated, incompatible threads on coupling.

Also shall be inspected that hose not connected to hose rack nipple or valve and outdated hose test.

Hose Storage Device or Rack
Storage racks are commercially available, but many users have built their own to fit their particular needs.

Storage device shall be inspected **annually** for damage, obstruction , difficult to operate, hose improperly racked or rolled, nozzle clip in place and nozzle correctly contained.

If enclosed in cabinet and will hose rack swing out at least 90 degrees.

Cabinet
Check overall condition **annually** for corroded or damaged parts, difficult to open or cabinet door will not open fully and door glazing cracked or broken.

If cabinet is break-glass type, is lock functioning properly, break-glass device missing or not attached.

Not properly identified as containing fire equipment visible obstructions and all valves, hose, nozzles fire extinguisher etc, easily accessible.

Tank Exterior:
The **exterior** of the tank, supporting structure, vents, foundation, and catwalks or ladders shall be inspected **quarterly** for damages and weakening.

The area surrounding the tank shall be inspected **quarterly** to ensure it is free of combustible storage, trash, debris, brush, or material that could present a fire exposure hazard.

Any accumulation of material on or near parts that could result in accelerated corrosion or rot; ice build up; the exterior side and top of embankments supporting coated fabric tanks are free of erosion.

Pressure Reducing and Relief Valves:
Fire Pumps:
Casing relief valves all circulation relief valves shall be inspected **weekly** to verify that water flows through the valve when the fire pump is operating at shutoff pressure (i.e. churn) to prevent the pump from overheating.

Pressure relief valves shall be inspected **weekly** to verify that the pressure downstream of the relief valve fittings in the fire pump discharge piping does not exceed the pressure for which the system components are rated.

B. Fire Booster and Special Service Pumps:
Pump House, Heating Ventilating Louvers:
The visual inspection shall be performed **weekly** to ensure heat is not less than 40ºF (4.4ºC) and 70ºF (21ºC) for pump room with diesel pumps without engine heaters.

Ventilating louvers shall be free to operate.

Fire Pump:
A **weekly** visual inspection shall be made to ensure the pump suction and discharge and by-pass valves are fully open;

All piping shall be free of leaks;

Suction line pressure gauge readings shall be normal and reservoir is full;

System line pressure gauge readings shall be normal;

Wet pit suction screens shall be unobstructed and in place.

Check **annually** the accuracy of pressure gauge and sensors, pump shaft end play, coupling alignment and wet pit suction screen.

Diesel Engine Fire Pump System:
Fuel system – Tank level shall be 2/3 full, the tank float switch shall be in auto position, solenoids valve operational, check for water in the fuel system and condition of flexible hoses connectors **weekly**.

Lubrication system – Oil level in right angle gear drive is normal and ensure that lube oil heater is adequately lubricated **weekly**;

Cooling system – Check level, adequate cooling water to heat exchanger, water pump, condition of flexible hoses and connections **weekly**; **annually** inspect duct work, clean louvers (combustion air)

Exhaust system check for any leakage, the drain condensate trap **weekly**; **Quarterly check insulation and fire hazards;**

Battery system – Check electrolyte level of battery system along with the charger and charge rate weekly; **Monthly** Remove corrosion on pump casing, clean and dry housing; **Quarterly** Check that terminals clean and tight;

Electrical System – A general inspection, such controller pilot light on, transfer switch is closed, reverse phase alarm pilot light is off or normal phase rotation pilot light is on oil level in vertical motor sight glass is normal weekly. Check **monthly** circuit breakers or fuses; Check **quarterly** for wire chafing where subject to movement.

C. Water Storage Tank:
Condition of water in tank:
Water Level:
Tanks without supervised water level alarms

constantly attended location shall be inspected **monthly**.

Tanks with supervised water level alarms constantly attended location shall be inspected **quarterly**.

Air Pressure:
Air pressure without supervised air pressure source shall be inspected **monthly**.

Air pressure with supervised air pressure source shall be inspected **quarterly**.

Water Temperature:
The temperature of water tanks shall not be less than 40ºF (4ºC).
The temperature of water in the tanks **without** low temperature alarms connected to a constantly attended location shall be inspected and recorded **daily** during the heating season.

The temperature of water in the tanks with low temperature alarms connected to a constantly attended location shall be inspected and recorded **weekly** during the heating season.

Heating System:
The heating system and components including piping without a low temperature alarm shall be inspected **daily**.

The heating system and components including piping with a low temperature alarm shall be inspected **weekly**.

Tank Exterior:
The **exterior** of the tank, **supporting structure**, vents, foundation, and **catwalks** or **ladders** shall be inspected **quarterly** for damages and weakening.

The area **surrounding** the tank shall be inspected **quarterly** to ensure it is free of combustible storage, trash, debris, brush, or material that could present a fire exposure hazard.

Any accumulation of material on or near parts that could result in accelerated corrosion or rot; ice build up; the exterior side and top of embankments supporting coated fabric tanks are free of erosion.

Expansion Joints shall be inspected **annually** for leaks and cracks.

Hoops and Grillage of a wooden tank shall be inspected **annually**.

Exterior painted, coated or insulated surfaces of the tank and supporting structure, where provided shall be inspected **annually** for signs of degradation.

Interior Inspection The interior of steel tanks without corrosion protection shall be inspected every **3 years**. The interior of all other types of tanks shall be inspected every **5 years**. The tank interior shall be inspected for signs of pitting, corrosion, spalling, rots other forms of deterioration waste materials and debris aquatic growth and local or general failure of interior coating.

D. Valve and Valve Component:
Deluge Valves:
The valve **enclosure** without temperature alarm heating equipment is subject to freezing shall be inspected **daily** during cold weather for its ability to maintain a minimum temperature of at least 4°C (40°F);

Valves **enclosures** equipped with **low temperature alarms** shall be inspected & **Weekly during cold weather:**

Exterior valves shall be externally inspected **monthly** to ensure it is free from physical damage, the valve seat is not leaking, all trim valves are in the appropriate open or closed position and electrical components are in service.

Interior the interior of the valve and the condition of detection devices shall be inspected **annually** when the trip test is conducted.

Internal inspection of valves that can be reset without removal of a faceplate shall be permitted to be conducted every **5 years**.

Strainers, filters, restricted orifices and diaphragm cambers shall be inspected internally every **5 years** unless test indicate a greater frequency is necessary.

Dry Pipe Valves/ Quick Opening Devices:
The valve **enclosure** heating equipment is subject to freezing shall be inspected **daily** during cold weather for its ability to maintain a minimum temperature of at least 4°F (40°C);

Valves **enclosures** equipped with **low temperature** alarms shall be inspected **Weekly** during cold weather.

Exterior dry pipe valves shall be externally inspected monthly to ensure they are free from physical damage, the intermediate chamber is not leaking, all trim valves are in the appropriate open or closed position and electrical components are in service.

The **Interior** of the dry pipe valves shall be inspected **annually** when the trip test is conducted.

Strainers, filters, restricted orifices and diaphragm chambers shall be inspected internally every **5 years** unless test indicate a greater frequency is necessary.

Backflow Prevention Assemblies:
The double and single check assembly valves and double check detector assembly valve shall be inspected **weekly** to ensure that the OS&Y isolation valves are in the normal open position;

Valves secured with locks or electrically supervised shall be inspected monthly.

Fire Department Connections:
FD connection shall be inspected **quarterly** to verify the connections are visible and accessible, couplings or swivels are not damaged and rotate smoothly;

Plugs or caps shall be in place and undamaged;
Gaskets shall be in place and in good working conditions;

Identification signs are in place (such as distance to the nearest fire hydrant);

The check valve are fully operational and not leaking;

The automatic drain valve shall be placed in the **horizontal** position and operating properly;
The clappers within FDC shall be in place and operating properly.

Control Valves:
All indicating valves controlling water supplies shall be sealed, locked or provided with other approved methods as outlined in NFPA 25, 2002 edition. A seal is defined as an easily removable device (no key required) that will indicate the unauthorized operation of a valve.

Using this method shall require **weekly** inspections of each valve by the C of f holder. All indicating valves controlling water supplies equipped with locks and/or supervised shall be inspected monthly.

The inspection shall verify that, it is the normal open or closed position, properly sealed, locked, or supervised, provided with appropriate wrenches, free from external leaks and provided with appropriate identification.

Pressure Reducing and Relief Valves:
Fire Pumps:
Casing relief valves – all circulation relief valves shall be inspected **weekly** to verify that water flows

through the valve when the fire pump is operating at shutoff pressure (i.e. churn) to prevent the pump from overheating.

Pressure relief valves shall be inspected **weekly** to verify that the pressure down-stream of the relief valve fittings in the fire pump discharge piping does not exceed the pressure for which the system components are rated.

Alarm Valves:
Exterior alarm valves shall be externally inspected **monthly** to ensure the gauge indicate normal supply water pressure is being maintained. The valve shall be free of physical damage and all valves are in the appropriate open or closed position.

The retarding chamber or alarm drains shall be in a good condition without leaks.
All **alarm valve** and their **associated strainers**, **filters**, **and restricted orifices** shall be inspected **internally** every **5 years** unless test indicate a greater frequency is necessary.

Check Valves
Shall be inspected **internally** every **5 years** to verify that all components operate correctly, move freely and are in good condition.

Standpipe Systems:
All valves shall be inspected **quarterly** to verify the valve in the open position, not leaking in a good condition, with hand wheels installed and unbroken.

Downstream pressures shall be maintained in accordance with the design criteria.

This reprinted information is only part of the
STUDY MATERIAL for the C of F Exam.

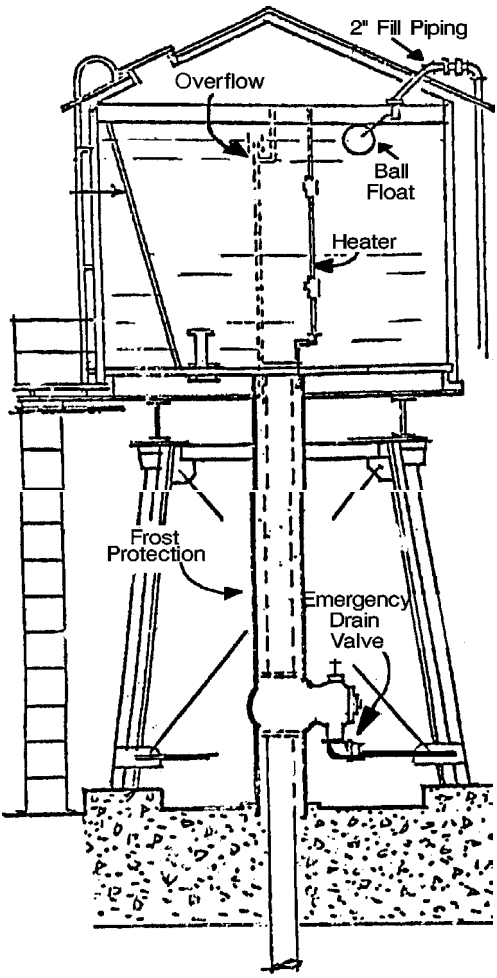
It can be viewed in its entirety at FDNY website:
http://www.nyc.gov/html/fdny/html/c_of_f/cof_requirements.shtml

Reprinted from the FIRE DEPARTMENT, CITY OF NEW YORK
Excerpts STUDY MATERIAL FOR THE EXAMINATION FOR
THE CERTIFICATE OF FITNESS FOR STANDPIPE SYSTEM
S-13 City Wide Standpipe System &
S-14 Standpipe for Multi-zone System
Revised 1-17-13

GRAVITY TANKS

The gravity tank supplies water using the force of gravity. Gravity tanks are used for water storage. They are made of wood, steel or concrete. Gravity tanks are used as a primary or secondary water supply source for standpipe systems. A gravity tank delivers water to the standpipe system without the use of pumping equipment. A gravity tank shall be at least 25 feet above the highest standpipe hose outlet that it supplies.

Tanks may be located on the tops of buildings or raised on tall supporting towers. A gravity feed standpipe system distributes water throughout the fire protection piping without the use of pumping equipment.



AN EXAMPLE OF A TYPICAL GRAVITY TANK

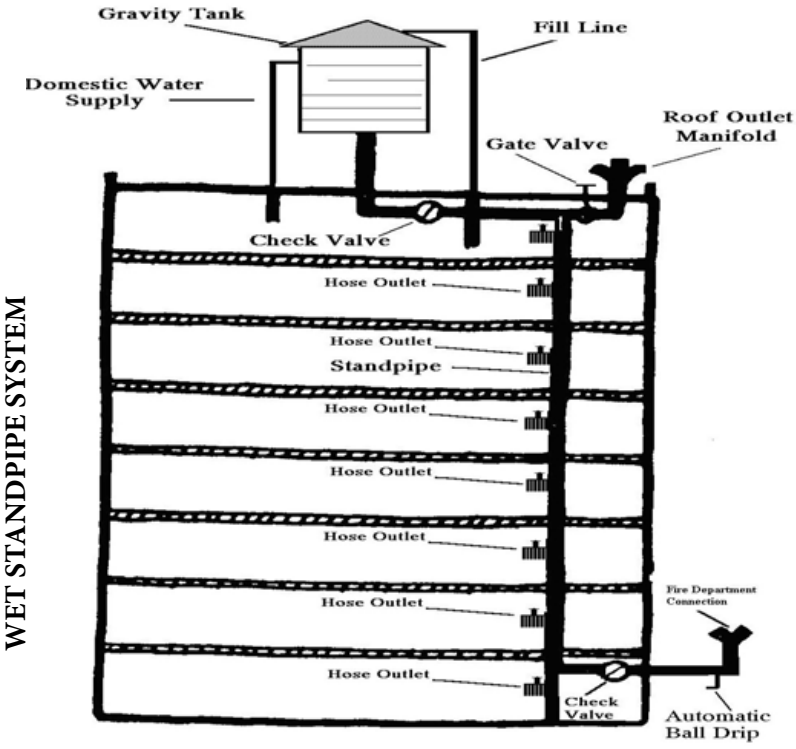
The water pressure in a gravity tank system depends on the elevation of the tank. This is a major advantage over other kinds of systems. For every 1 foot the tank is above the discharge outlet, an additional 0.433 psi of water pressure is achieved. For example a tank elevated at 100 ft above the discharge outlet will produce a pressure of 43.3 psi.

Automatic fill pumps supply the water to most gravity tanks. The pumps shall fill the tank at a rate of a minimum of 65 gpm (gallons per minute). Two floats control the amount of water in the tank. The floats turn on the fill pump when the water in the tank is too low. The floats shut off the pump when the desired water level is reached. The floats make sure the gravity tank always has the right amount of water to supply the standpipe system. All gravity tanks have an overflow pipe that drains off too much water in the tank. This happens if the floats do not turn off the fill pump. A fill pump is not necessary if the water pressure in the city water main is able to keep the tank filled with the right amount of water.

Gravity tanks are exposed to very low temperatures. All parts of the gravity tank must be insulated or heated to keep the water from freezing. Several methods are used to heat the tank and the pipe that supplies the water. (1) Hot water is circulated by gravity. (2) Steam is discharged directly into tank. (3) Steam coils are placed inside the tanks. (4) Heat from the sun is used. The C of F holder can find out the temperature of the water by looking at a thermometer. The thermometer is located near the heating device. The tank can be severely damaged if the water inside the tank freezes. The temperature of the water should always be at least 40° Fahrenheit. Ice should not be allowed to build up on the gravity tank. The extra weight of the ice can weaken the supports of the tank, and cause the tank to collapse. Falling icicles may also cause damage or injury. It is essential to be sure that the tank is properly heated, insulated, and carefully maintained.

The gravity tank shall always have a full supply of water. A full tank of water is needed to be sure the standpipe system works properly during a fire. Keeping the tank full of water also prevents wooden tanks from shrinking. A full tank of water also helps to keep steel tanks from rusting.

It is best if gravity tanks are used only for fire protection and for no other purpose. Tanks used for other purposes need to be refilled more often. The tanks become settling basins for sediment mixed in with the water. This sediment is then drawn into the piping. This may cause the standpipe system to become clogged and not work properly. The Borough Dispatcher should always be notified when a tank cannot be used for any reason.



Failure of a standpipe system supplied by a gravity tank during a fire is usually caused by not enough water in the tank. The standpipe system cannot be supplied if there is not enough water in the tank. Too much water in the tank can also cause the fire protection system to fail. Too much water in the tank may cause damage due to the weight of the extra water. This could cause the gravity tank to collapse.

The gravity tank must be constantly monitored to be sure that the tank and its parts are working. Electrical supervision devices monitor the water temperature and the water level in the gravity tank. These devices send signals to a central station company about the water level and water temperature. The central station company notifies the C of F holder when a problem with the gravity tank is detected. The C of F holder should correct the problem as soon as possible. The supervisory devices are sometimes called high and low alarms since they also send audible signals to alert the C of F holder when there is a problem.

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Excerpts STUDY MATERIAL FOR THE EXAMINATION FOR
THE CERTIFICATE OF FITNESS FOR STANDPIPE SYSTEM
S-13 City Wide Standpipe System &
S-14 Standpipe for Multi-zone System
Revised 1-17-13

LOCAL LAWS #58/2009 (EXCERPTS)
Part 12 & 13 of Study Material

903.6 Painting of dedicated sprinklers. Dedicated sprinkler piping shall be painted and such painting certified in accordance with Sections 903.6.1 through 903.6.5. In addition to painting, sprinkler piping may also be identified by lettered legend in accordance with ANSI A13.1. Where the piping is required to be listed and labeled such painting shall not obscure such labeling.

Exceptions:
1. Attachments, gauge, valves and operable parts of sprinkler systems other than valve handles.

2. Horizontal branch lines.

3. Where different color coding may be required by Section 3406 of the New York City Fire Code for facilities storing, handling, and using flammable and combustible liquids in connection with special operations.

903.6.1 New buildings. Cross connections and risers in new buildings, including buildings constructed pursuant to Section 28-101.4.2 of the Administrative Code, shall be painted **red** and the handles of valves serving sprinklers shall be painted **green** prior to the hydrostatic pressure test regardless of whether they will be enclosed at a later point in time.

Exception: Where a standpipe system is used as a combination standpipe and sprinkler system, the sprinkler risers and cross connections that are also used for the standpipe system shall be painted **red** and the handles of valves serving such combination system shall be painted **yellow**.

903.6.2 Alterations. Cross connections and risers for independent (stand-alone) existing sprinkler systems that are exposed during alterations, including alterations pursuant to Section 28-101.4.2 of the Administrative Code, shall be painted **red** and the handles of valves serving such existing sprinkler systems shall be painted **green**. Where the alteration requires a hydrostatic pressure test such painting shall be completed prior to such test.

Exception: Where a standpipe system is used as a combination standpipe and sprinkler system, the sprinkler risers and cross con-

nections that are also used for the standpipe system shall be painted **red** and the handles of valves serving such combination system shall be painted **yellow**.

903.6.3 Retroactive requirement for completed buildings. Notwithstanding any other provision of law, all exposed risers and cross connections of completed buildings in existence on the effective date of this section shall be painted **red** within three months after the effective date of this section, and all handles of valves serving such sprinkler system shall be painted **green**.

Exception: Where a standpipe system is used as a combination standpipe and sprinkler system, the sprinkler risers and cross connections that are also used for the standpipe system shall be painted **red** and the handles of valves serving such combination system shall be painted **yellow**.

903.6.4 Buildings under construction on the effective date of this section. Notwithstanding any other provision of law, where construction documents were approved and permits issued for the construction of a new building or alteration of an existing building prior to the effective date of this section and the work is not signed off by the department prior to such date, all exposed cross connections and risers in any such building shall be painted **red** prior to the hydrostatic pressure test, including cross connections and risers that will be enclosed at a later point in time, and handles of valves servings such sprinkler system shall be painted **green**.

Exceptions:
1. Where a standpipe system is used as a combination standpipe and sprinkler system, the sprinkler risers and cross connections that are also used for the standpipe system shall be painted **red** and the handles of valves serving such combination system shall be painted **yellow**.

2. Cross connections and risers enclosed prior to the effective date of this section need not be painted.

903.6.5 Certification of completion of system painting. For all buildings where sprinkler and combination sprinkler and standpipe systems are not subject to a special inspection pursuant to Section 1704.21 of this code, a licensed master plumber, licensed master fire suppression piping contractor, registered design professional or an individual holding an appropriate C of F from the Fire Department for the operation and/or maintenance of such system shall certify on forms provided by

the department that all required painting has been completed in accordance with Section 903.6. Such certification shall be maintained on the premises and made available for inspection by the department and the Fire Department.

§2. Section 905 of the New York City building code, as added by local law number 33 for year 2007, is amended by adding a new section **905.11 to read as follows:**

905.11.6 Certification of completion of system painting. For all buildings where standpipe and combination sprinkler and standpipe systems are not subject to a special inspection pursuant to Section 1704.22 of this code, a licensed master plumber, licensed master fire suppression piping contractor, registered design professional or an individual holding an appropriate C of F from the Fire Department for the operation and/or maintenance of such system shall certify on forms provided by the department that all required painting has been completed in accordance with Section 905.11. Such certification shall be maintained on the premises and made available for inspection by the department and the Fire Department.

SECTION FC 905 STANDPIPE SYSTEMS

905.1 General. Standpipe systems shall be provided where required by the construction codes, including the Building Code, this code or the rules. Fire hose threads used in connection with standpipe systems shall be approved by the commissioner. The location of fire department hose connections shall be approved by the commissioner. Standpipe systems in buildings used for high-piled combustible storage shall be in accordance with Chapter 23.

905.1.1 Standpipe system operator. In buildings with a multi-zone standpipe system, such system shall be continuously under the personal supervision of a person holding a C of F, who shall be immediately available to assist the department in the operation of such system.

905.2 Installation standards. Standpipe systems shall be installed in accordance with the construction codes, including the Building Code.

905.7 Cabinets. Cabinets containing firefighting equipment, such as standpipes, fire hose, portable fire extinguishers and water supply control valves, shall not be obstructed from use or obscured from view.

905.8 Reserved.

905.9 Valve supervision. Valves controlling water supplies shall be supervised in the open position so that a change in the normal position of the valve will generate a supervisory signal at the central station required by Section 903.4. Where a fire alarm system is provided, a signal shall also be transmitted to the fire alarm system control panel.

Exceptions:

1. Valves to underground key or hub valves in roadway boxes provided by the municipality or public utility do not require supervision.
2. Valves locked in the normal position and inspected as provided in this code in buildings not equipped with a fire alarm system.

905.10 During construction. Standpipe systems required during construction, alteration and demolition operations shall be provided in accordance with Chapter 33 of the Building Code and Section 1413.

905.11 Reserved.

905.12 Maintenance. Standpipe systems shall be maintained, including all required inspection, testing and servicing, in accordance with this section, Section 901.6 and NFPA 25.

905.12.1 Standpipe hydrostatic pressure and flow tests. Upon order of the commissioner, but at least once every 5 years, the standpipe system shall be subjected to a hydrostatic pressure test and a flow test to demonstrate its suitability for department use. These tests shall be conducted in compliance with the requirements of the rules and shall be conducted at the owner's risk, by his or her representative before a representative of the department.

905.12.2 Pressure reducing valves. Upon order of the commissioner, but at least once every 3 years, standpipe systems with pressure reducing valves installed shall be flow tested to demonstrate proper adjustment of such valves.

§ 905-01 Standpipe System Pressure Reducing Devices

(a) **Scope**. This section sets forth requirements for standpipe system pressure reducing devices.

(b) **Definitions**. The following terms shall, for purposes of this section and used elsewhere in the rules, have the meanings shown herein:

Pressure reducing devices. Devices, including valves, installed in standpipe systems at or near hose outlet connections that act to limit both the static and dynamic water pressures downstream of the standpipe outlet valve.

Pressure restrictors. Removable fittings or "SECO Type" valves that restrict flowing water pressures by reducing the available cross-sectional area of flow.

(c) **General Provisions**

(1) Certificate of approval. Pressure reducing devices installed in a standpipe system shall be of an approved type and for which a certificate of approval has been issued.

(d) Pressure Reducing Device Requirements.

(1) Location and pressure markings. Each pressure reducing device shall be permanently marked with the address of the premises in which it is installed, its floor location, and its designated pressure setting.

(2) Adjustments and reporting. Upon initial installation of a pressure reducing device, and at least once every three (3) years thereafter, a master fire suppression contractor shall file an affidavit with the Department on behalf of the building owner attesting to the following:

(A) The building address and owner's name.

(B) The floor location of all standpipe system pressure reducing devices and the inlet pressure (static and operating) of each device.

(C) The setting of each device and the corresponding discharge flow rate (gpm), discharge pressure (psig), and the maximum outlet static pressure (psig).

(D) The name, address, and master fire suppression contractor license number of the person submitting the affidavit.

(3) Flow testing. Upon order of the Commissioner, but at least once every three (3) years, standpipe systems with pressure reducing devices installed shall be flow tested with a minimum actual flowing discharge of 250 gpm. These tests shall be conducted by a master fire suppression contractor who shall provide the Department five (5) business days notice of the date and time of the test. The Department may witness these tests at its discretion.

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S-13 City Wide Standpipe System &
S-14 Standpipe for Multi-zone System
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PART 2:

RESPONSIBILITY OF THE BUILDING OWNER

It shall be the owner's responsibility to maintain the Standpipe system and to determine the individual qualifications and competencies of the individual his C of F holder to perform certain functions related to inspection, testing and maintenance.

901.6.2 Records. Records of all system inspections, tests, servicing and other maintenance required by this code, the rules or the referenced standards shall be maintained on the premises for a minimum of 3 years and made available for inspection by any department representative.

901.7.1 Impairment coordinator. The building owner shall assign an impairment coordinator to comply with the requirements of this section. In the absence of a specific designee, the owner shall be considered the impairment coordinator.

The building owner or their agent shall assign an impairment coordinator to maintain records of all system inspections, tests, servicing and other items of maintenance on premise for a period of three years and made available for inspection by any member of the FDNY. In absence of a specific designee, the building owner shall be considered the impairment coordinator (FC 901.7.1). :

PART 3:

OUT OF SERVICE SYSTEMS (OOS)

Planned removal from service: When the system, or a portion of the standpipe system, is placed out of service for a scheduled inspection, testing, regular maintenance, minor repairs or for construction affecting not more than 1 floor, the C of F holder and the impairment coordinator shall be made aware of and authorize the placing of the system out of service.

Unplanned out of service condition: A serious defect in the standpipe system including, but not limited to: an empty tank, a break or major leak in the system's water piping, inoperative or shut water supply valves, defective fire department connections, construction related shut downs affecting more than one floor, or complete or partial shut downs of the standpipe system, other than a shut down for a planned removal from service.

Minor defects observed by the C of F holder shall be reported to the owner. Orange and yellow deficiencies if not corrected with 30 days it shall be deemed to be impairment and reported in writing to the Fire Department (FC 901.7.5).

Fire Department Notifications For Out of Service Conditions:

a) For a planned removal from service, as described above, no notification to the Fire Department is required provided the system will be returned to service within an 8 hour period and when all other fire protection systems in the building (standpipes and alarm systems) are fully operational.

b) For an unplanned removal from service as described above, the C of F holder, impairment coordinator, and/or other person responsible for inspecting, maintaining or supervising the operation of a fire protection system shall immediately report such condition to the owner of the building and to the FDNY Borough Dispatcher (FC 901.7.5). The telephone numbers are as follows:

Manhattan	**212-570-4300**
Bronx	**718-430-0200**
Brooklyn	**718-965-8300**
Queens	**718-476-6200**
Staten Island	**718-494-4296**

c) The initial Fire Department notification shall include the following:

1. A brief description and extent of the out of service condition.
2. The area of the building affected.
3. The type of occupancy
4. The estimated time the system will be out of service.
5. The name and phone number of the person making the notification.

d) When the C of F holder observes a minor defect or other condition not presenting a serious safety hazard, he or she shall report the defect or condition to the owner, and if the defect or condition is not corrected within 30 days it shall be deemed to be an impairment and reported in writing to the Fire Department (FC 901.7.5). Correspondence should be sent via email spkstp@fdny.nyc.gov or by certified documents to:

New York City Fire Department
Bureau of Fire Prevention
Fire Suppression Unit, 3rd Floor
9 Metro Tech Center
Brooklyn, New York 11201

Identifying OOS Systems Using Discs/Tags: Systems that are out of service, both planned and unplanned, shall be immediately identified by placing a tag at each of the following locations: fire department connections, system control valves, fire command center or other clearly visible location in the lobby of the building, indicating which system or part thereof is out of service. Impairment coordinators/ building owners shall ensure the placement of these tags by MFSPC's or MLP (as restricted) or FDNY units. In addition, for an unplanned out of service condition, a disc (white or blue) shall be placed at all affected fire department connections to inform responding fire department units of the out of service condition. When the condition has been corrected, the disc(s) shall be removed immediately.

Tag Requirement: A tag shall be used to indicate that a system, or portion, is out of service (FC901.7.2). An Impairment coordinator, Owner, Master Fire Protection Piping Contractor (A or B license), Master Plumber (as restricted) or any authorized person with a proper certificate of fitness from FDNY shall place out of service tags at all required and appropriate locations. This is for planned and unplanned removal of fire protection piping systems from service. The tag shall indicate the area affected, a brief description of the condition, the occupancy classification, C of F number and the estimated time until the system becomes operational.

Drain test results shall be posted on the tag indicating both the static and flow pressures before and after the system was placed in an out of service condition.

If no impairment is found in the entire system green tags will be placed on the main control valve.

Systems Partially or Fully Out of Service: Fire suppression piping systems equipped with Fire Department connections shall follow the following procedures for identifying systems out of service:

Systems Fully Out of Service: The impairment coordinator/building owner shall ensure that the local administrative fire company, Master Fire Suppression Contractor (Class A or B) or MLP's (as restricted) has placed one White disc 8 to 9 inches in diameter on all affected fire department connections. A RED tag shall be placed at the main control valve indicating the standpipe/sprinkler company name, C of F number, date of removal from service and anticipated return to service date.

Systems Partially Out of Service: The impairment coordinator/ building owner shall ensure that the local administrative fire company, FSPC's or FDNY units Master Fire Suppression Contractor Class A or B has placed one Blue Disc 8

to 9 inches in diameter on all affected fire department connections. A RED tag shall be placed at the main control valve and any closed sectional valve indicating the company name, C of F number, the date of removal from service and anticipated return to service date.

An Example of FDNY White and Blue Discs

The C of F holder and the impairment coordinator shall be made aware of and authorize the placement of system(s) out of service that are planned to be shut down. The impairment coordinator prior to taking a system out of service shall:

- Determine the duration the system is to be out of service,
- Inspect the areas of the building affected and assess the increased risk,
- Notify the insurance carrier, the central station operator (if so equipped), the occupants of the affected area, and place out of service tags and discs at the appropriate locations (901.7.4).

Impaired Equipment: Underground service mains, water storage tanks, Fire Department connections, control valves, fire and or booster pumps, that are out of service and are considered vital to part of the system that are required to be tagged following procedures outlined in chapter 14 NFPA #25 2002 Ed.

Tags placed at control valves shall indicate the level of impairment for system fully or partially shut down or defect as follows:

	Tag	Disc
System fully out of service	Red	White
System partially out of service	Red	Blue

Only **FDNY**, Owner, **MFSPC** or **MLP** (as restricted) may place a white or blue disc on a system. For systems that are fully or partially out of service that are not equipped with Fire Department connections, the appropriate tags shall be placed at the main control valve. FDNY is to be notified immediately.

In a building required by the NYC Fire Code to have a Fire Safety Director with (F-58 or F-25), an Engineer (Q-01 & Q-99) with the S-12, S-13 or S-14 C of F, is authorized to take the system out of the service for less than 8 hrs and place an appropriate colored tag on that system. The FSD and the Engineer must be on the premises at the all times.

Prior to returning a system to service, the impairment coordinator shall ensure that the necessary tests and inspections are conducted to verify that the system is operating normally, notify FDNY borough dispatcher, the building owner's tenants in the affected area, the insurance carrier, central station operator (if so equipped) and remove out of service tags and discs. (FC 901.7.6)

Part 4:

Procedure for Detail Record Keeping, Impairments & Safety

It shall be the responsibility of the C of F holder to perform the following:

Record keeping - The C of F holder shall maintain a detailed record of all inspections. A record card with the date of each inspection, the C of F number, and the signature of the C of F holder shall be posted on the premises near the main water supply control valve.

The detailed inspection report shall include information relative to conditions of water supply, gravity and pressure tanks and levels therein, valves, risers, piping, and Fire Department connections, alarms, fire, booster and special service pumps, obstructions, and conditions of all other system equipment and appurtenances. All defects and/or impairments shall be noted on the report. Records shall be readily available to any representative of the Fire Department. These records are to be maintained on premise by the building owner for three years.

Part 5:

Individual Authorized to Perform Tasks as per NYC Fire Code

1. Certificate of Fitness (C of F) for S-13 and/or S-14-visual inspections only, proper notification and keeping record of inspection results for examination by FDNY.
2. C of F for S-13* for Refrigeration Operating Engineer (Q-01 & Q-99), NYC High pressure Operating Engineer, NYS High Pressure Operating Engineer are permitted to perform visual inspections, test notification

appliances, perform daily and weekly routine maintenance and record all inspection, testing and maintenance results for examination by FDNY.

* (For employees of a single or multiple properties under common ownership employed by the same building owner/management company)

3. C of F holder for S-14 employed by a site-specific building owner with the following certifications: Refrigeration Operating Engineer (Refrigeration Q-99 & Q-01), High Pressure Operating Engineer and NYS High Pressure Operating Engineer are permitted to perform visual inspections, test notification appliances, perform daily and weekly routine maintenance and record all inspection, testing and maintenance results for examination by FDNY.
4. Master Fire Suppression Piping Contractor (MFSPC) with S-13 C of F can inspect, test, maintain and repair/replace all fire standpipe and sprinkler systems components, record maintenance, inspection and test results for examination and evaluation by FDNY.
5. Master Plumber (MP) – with S-13 for Standpipe Systems that are not combined with sprinkler systems. can inspect, test, maintain and repair/replace all fire standpipe systems, record of maintenance, inspection and test results for examination by FDNY.